POKROVSKIY, G. (Maj. Gen.)

"A New Satellite of the Earth"

Tekhnika Molodezhi, 1944

Washington Star, 7 Aug 1955.

POKROVSKIY, G.

"On the Question of Physical Nature of Cumulation." Zhur. Eksper. i Teoret. Fiz., 14, No 7-8, 1944.

POK

POKROVSKIY, G. I.

"Experimental Investigation of the Volume Compressibility of Soils," Zhur. Tekh. Fiz., 14, No. 9, 1944

ICKLOVSKIY, G. I.

Novosibirsk (-1944-)

"Cooling Cutting Tools by Means of Compressed air."
Stanki I Instrument Vol. 15, No. 4-5, 1944

BR 52059019

POKROVSKIY, G. I., and KOROLEV, F. A.

"Directional Effect of Explosion Studied by the Optical Method," Comptes Rendus AS USSR, 1944, Vol. 42, No. 6, pp 256-257; also in Doklady AS USSR, 1944, Vol. 42, pp 266-267, (Research Institute of Physics, Moscow State University), in English; available at Battelle Memorial Institute.

"Measurements made by a spark-photographic technique showed that a distinct cumulative jet extends in the dierection of the detonation axis in the shape of an acute cone, the apex of which moves at high speed. For charges with a cu shell the velocity is ~5000 m./sec. for distances of 120 mm. from the cumulative depression of the detonator and ~10,000 m./sec. in the vicinity of the charge. The speed of the non-directed portions of the shock wave is ~1/2 that of the cumulative jet, which is higher with lighter shells. Up to 10-15 charge calibres away the explosive gases follow the head of the jet, but afterwards fall behind. A small portion of the explosion products has a velocity >10,000 m./sec. at distances >100 mm. from the detonator."

PONOMARIV, G. I. and Stanyukovich, K.P.

"Elements of a Directed Blast," a report presented at one of the sessions of the General Assemblies of OFMI in 1944

IAN-Ser Fiz, Vol 9, No 3, 1945

POKROVSKIY, G. I.

"Atomic Energy and the Prospects of Its Utilization." Agitator's Handbook, Moscow, No. 15, pp. 36-39, 1945.

POKROVSKIY, G. I.

"Velocity Distribution in Directional Explosion." Dok. AN, 46, No 3, 1945. Engineering Academy of the Red Army.

POKROVSKIĬ, GEORGIĬ IOSIFOVICH.

Predposylki primeneniia energii atomnogo iadra v aviabombakh. Moskva, 1946. 22 p., diagrs.

At head of title: Krasnoznamennaia ordena Lenina Voenno-vozdushnaia inzhenernaia akademiia im. N. E. Zhukovskogo.

Bibliography: p. 22.

Title tr.: Prerequisites for the use of atomic energy in aerial bombs.

UF767.P6

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

POKROVSKIY, G. I.

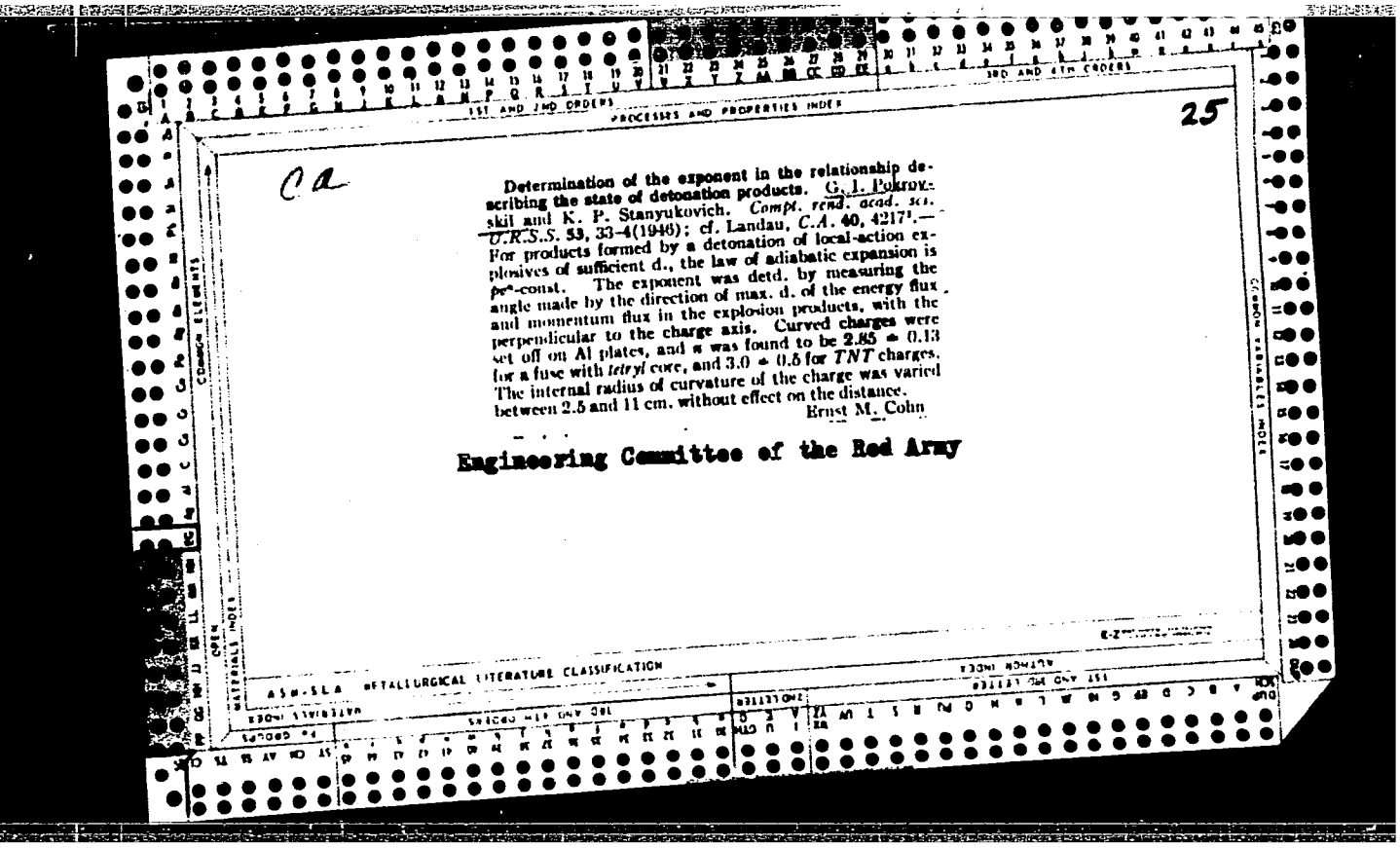
"Rocket-the Engine and the Weapon," The Story of Science and Its Creators, Detgiz, Moskva, 1946, pp 243-256.

POKROVSKIY, G. I., Laboratory of Physics of the Military Engineering Academy of the Red Army.

and B. Yampolskiy.

"An Electrohydrodynamic Analogy of Shaped Charge Effect." Zhur Eksper i Teoret Fiz, 16, No 3, 1946.

Describes a simple electrohydrodynamical model of the shaped-charge effect which utilized an electric discharge in a capillary tube to expel a jet from a "shaped" capillary meniscus which records the ejection velocity on a rotating disc. The work was done in June 1944.



1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

25

CA

Determination of the exponent in the relationship describing the state of detonation products. G. I. Pokrovskii and K. P. Stanyukovich. *Compt. rend. acad. sci. U.R.S.S.* **53**, 33-4(1946); cf. Landau, *C.A.* **40**, 4217[1].—For products formed by a detonation of local-action explosives of sufficient d., the law of adiabatic expansion is pv^{κ}-const. The exponent was detd. by measuring the angle made by the direction of max. d. of the energy flux and momentum flux in the explosion products, with the perpendicular to the charge axis. Curved charges were set off on Al plates, and κ was found to be 2.85 ± 0.13 for a fuse with *tetryl* core, and 3.0 ± 0.5 for *TNT* charges. The internal radius of curvature of the charge was varied between 2.5 and 11 cm. without effect on the distance.
Ernst M. Cohn

Engineering Committee of the Red Army

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

POKROVSKIY, G. I.

PA 21T105

USSR/Physics Jan 1947
Ballistic Pendulum
Ballistics

"Two-dimensional Ballistic Pendulum," G I Pokrovskiy, 2 pp

"Dok Ak Nauk SSSR" Vol LV, No 3

Submitted by S.I. Vavilov, 23 Sep 46. Experiments were conducted to discover the impulse delivered to a gaseous element in which a solid element is oscillating. This two-dimensional ballistic pendulum was similar to the one used by Kassini in 1707 and Robinson in 1740.

21T105

POKROVSKIY, G. I.

FA 2/50T73

USSR/Engineering - Centrifuges Dec 48
Test Equipment

"Studying Models of Construction by Means of Centrifuges," G. I. Pokrovskiy, Dr Mech Sci, Active Mem, Acad Arty Sci, 3 pp

"Nauka i Zhizn" No 12

Describes, with diagrams and graphs, a centrifuge used to test models of buildings, bridges, railroads canals, dams, tunnels, foundations, etc., for their reactions to shakings and stresses. Authorities on this method are I. S. Fedorov, B. N. Fedorov, V. I. Shvey, V. G. Bulychev, and Prof N. A. Nasedkin.

2/50T73

USSR/Engineering - Centrifuges Dec 48
Test Equipment (Contd)

Work is being conducted at Moscow, Baku, Krivoi Rog, etc., with many new machines.

2/50T73

POKROVSKIY, G. I.

PA 43/43T14

USSR/Electricity Feb 1948
Discharges, Electric
Metals

"Structural Variations in a Metal Acted Upon by a Condensed Electrical Discharge," G. I. Pokrovskiy, V. I. Likhtman, Inst Phys Chem, Acad Sci USSR, Mil Engin Red Banner Acad imeni V. V. Kuybyshev, 2½ pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LIX, No 4

Gives details of preliminary experiments on various metals using highly condensed energy, and shows very satisfactory results. Submitted by Academician S. I. Vavilov, 22 Dec 1947.

43T14

POKROVSKIY, G. I., FEDOROV, I. S., and DOKUCHAYEV, M. M.

"Theory and Practice of the Building of Dams by Directed Explosions," State Publishing House of Literature on Construction and Architecture, Moscow, 1951, 120 pp.

1. POKROVSKIY, G. I.

2. USSR (600)

4. Explosives

7. Means for increasing the coefficient of utility of the power of explosive products in excavation blasting. Gor. zhur. No. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

POKROVSKIY, G. I., Prof.

Mechanical Engineering

Discussion on mechanisms. Tekh. molod. 20 no. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. UNCLASSIFIED.

POKROVSKIY, G.I., doktor tekhnicheskikh nauk, professor.

[Technical physics in hydraulic construction; earthwork physics] Tekhnicheskaia fizika na sluzhbe stroitel'stva gidrotekhnicheskikh sooruzhenii (Fizika zemlianykh rabot). Moskva, Izd-vo "Znanie," 1953. 31 p. (MLRA 6:12)

(Earthwork) (Hydraulic engineering)

POKROVSKIY, G.I., professor; FEDOROV, I.S., professor; MEYSTER, V.A., redaktor, kandidat tekhnicheskikh nauk.

[Centrifugal-model operation for the solution of engineering problems] Tsentrobeshnoe modelirovanie dlia resheniia inzhenernykh zadach. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 195 p.
(MLRA 7:1)
(Engineering models)

POKROVSKIY, G.I., doktor tekhnicheskikh nauk (Moscow).

Principles of physics in excavating work. Fiz. v shkole 13 no.4:7-12 Jl-Ag '53. (MLRA 6:6)
(Excavation)

POKROVSKIY, G., Prof.

Earthwork

Physics of earth work. Tekh. molod. 21, no. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

POKROVSKIĬ, Georgii Iosifovich.

Physical aspects of the explosion; public lecture Moskva, Znanie, 1954. 23 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Seriia 3, no 45) (55-36793)

H39.V8 1954 no. 45

1. Explosions

POKROVSKIY, G.I., doktor tekhnicheskikh nauk, professor; KOKOSOV, B.V., redaktor; SLEPTSOVA, Ye.N., tekhnicheskiy redaktor.

[Explosions and their effect] Vzryv i ego deistvie. Moskva, Voennoe izd-vo Ministerstva oborony Soiuza SSR, 1954. 55 p.
(Explosions) (MLRA 7:12)

POKROVSKIY, G., (Maj. Gen, Engr-Tech Serv, Professor, Doctor of Technical Sciences)

Coauthor with Engr. Lt. Col. M. ARKHIPOV of article, "The Physics of the Action of Nuclear Forces (In the Atmosphere and in the Sea)," telling of the effects of nuclear explosions, and of light and shock waves, produced by air and underwater bursts of nuclear bombs. (Krasnaya Zvezda, Moscow, 4 Jun 54)

SO: SUM No. 224, 28 Sep 1954

POKROVSKIY, G., (Maj Gen, Engr-Tech Serv, Professor, Doctor of Technical Sciences)

Author of article, "The Physics of the Action of Nuclear Forces, " subtitled, "The Shock Wave," describing and demonstrating with drawings the shockwave patterns of air, ground, and underwater bursts of nuclear bombs. [Full translation of article appears in Joint Press Reading Service, No 133, 13 May 1954] (Krasnaya Zvezda, Moscow, 6 May 54).

SO: SUM No. 208, 9 Sep 1954

POKROVSKIY, G. (Maj. Gen.)

"Atomic Engine" (Dvigatel' na Yadernom Goryuchem), Krasnaya Zvezda, No 219, 15 Sep 1954

Summary of article - D 180567, 16 Feb 55

POKROVSKIY, G., Maj Gen, Engr-Tech Serv, Professor, Doctor of Technical Sciences

Author of article, "The Problems of the Utilization of Atomic Energy (Atomic-Fuel Engine)," concerning the advantages and disadvantages of using atomic piles as heat and power sources in engines. The author compared the weights of conventional engines with those of a theoretical atomic engine, and pointed out the differences in the quantity of fuel needed for each. He mentioned the use of an atomic engine in a submarine, pointing out that the Soviet Union has considered the peaceful use of such a submarine (cruising under Arctic ice, for example), whereas the US has thought only of its military use. The author also discussed the theories of various jet engines, and told how a piston engine might be constructed to use atomic fuel. (Full translation in Joint Press Reading Service, No 261, 18 September 1954.)
Krasnaya Zvezda, Moscow, 15 Sep 54

Author of article, "The Beginning of the Era of Atomic Energetics," concerning the peacetime use of atomic energy. Tekhnika Molodezhi, Moscow, No 9, Sep 54

SO: SUM 291, 2 Dec 1954

POKROVSKIY, G.

AID - P-53

Subject : USSR/Nuclear Physics

Card : 1/1

Author : Pokrovskiy, G., Major General of Engineering Technical Service, Professor, Doctor of Technical Science

Title : Physical Basis of Obtaining Atomic Energy

Periodical : Vest. vozd. flota 3, 85 - 90, March 1954

Abstract : This article was written in answer to a reader's question about atomic energy. It is a simple popular explanation of the principles of atomic structure and atomic energy. Diagrams.

Institution : None

Submitted : No date

POKROVSKIY, G. I.

"A Dam in Six Minutes," Tekhnika Molodezhi, 1954, No. 6, pp 1-3.

"According to a report accompanied by drawings, published in Moscow, Soviet scientists are drawing up plans, involving the use of atomic energy, which outdo all previous claims in connection with Soviet achievements. The report reads:

'A dam in six minutes. A soviet scientists were working on projects for the building of power stations in a very short time, with the aid of freed atomic energy. The project, based on procedure suggested by the Soviet scientist, G. Pokrovskiy, is as follows:

"icture1: Steel pipes with extra strong walls-about seven feet thick-will be brought to the site of the dam. The picture shows the placing of explosives and atomic balsting charges on both river banks. Pictures 2 and 3: The preparatory and the main explosions will create an air wave, lifting the surrounding soil. Great masses of soil from both banks will fill the river bad and thus fix and consolidate the position of the steel pipes.
Picture 4: the technical construction of the power station can begin.
Picture 5: The power station working. (A sectional drawing of the dam shows the placing of the steel piping and turbines of the power plant.)'"

POKROVSKIY, G. I.

"Beginning of the Era of Atomic Energy," Tekhnika Molodezhi, 1954, No. 9, pp 2-5.

"The article states, that, on June 27, 1954, Soveit scientists and engineers started operation of the first industrial electric generating station in the world working on atomic energy. Generating stations putting out 50,000 tp 100,000 kilowatts are expected to be constructed. The illustrations to this article present several possible methods of utilizing the nuclear energy of uranium. The article is essentially an elementary, popular treatment of the subject. The future possibilities of nuclear energy are discussed, including interplanetary travel and altering the earth's orbit."

POKROVSKIY, G.

AID P - 413

Subject : USSR/Aeronautics

Card 1/1 Pub. 135, 9/17

Author : Pokrovskiy, G., MajGen of the Engineering Technical Service, Prof., Doc. of Tech. Sci.

Title : Some problems of anti-atom bomb defense

Periodical : Vest. vozd. flota, 9, 46-51, S 1954

Abstract : The author revises the main problems of anti-atom bomb defense. He explains the propagation of the blast wave, the influence of the weather on the blast, conditions behind obstacles, etc. He describes also some shelters, and gives details of an open air jet aircraft shelter. Diagrams.

Institution : None

Submitted : No date

Summ. of article D180568, 16 Feb 55

POKROVSKIY, G. I. (Maj Gen, Eng of Tech Serv)

Internal Energy of the Atom

Za Oboronu (For Defense), #24, Dec 54, Uncls

POKROVSKIY,G., professor, doktor tekhnicheskikh nauk, general-mayor inzhenerno-teknicheskoy sektsii

Destructive action of explosions. Vest.Vozd.Fl. 37 no.5:90-94 My '54. (MIRA 8:8)
(Explosives, Military)

POKROVSKIY, Georgiy Iosifovich, doktor tekhnicheskikh nauk, professor. ISLANKINA, T.F., redaktor; ISLENT'YEVA, P.G., tekhnicheskiy redaktor.

[Very high pressures in nature and engineering] Ves'ma vysokie davleniia v prirode i tekhnike. Moskva, Izd-vo "Znanie," 1955. 23 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.3, no.20) (MLRA 8:9)
(Pressure(Physics))

POKROVSKIY, G.I., doktor tekhnicheskikh nauk, professor; NAUMENKO, Ivan Artemovich; BOGDANOV, N.N., redaktor; ZHURAVLEV, A.S., tekhnicheskiy redaktor

[Atomic energy and its utilization] Atomnaia energiia i ee ispol'zovanie. Pod red. G.I.Pokrovskogo. Moskva, Izd-vo Dosaaf, 1955. 85 p. (MLRA 8:7)
(Atomic energy)

POKROVSKIY, G. I.

"From Atomic Power Plants to Cosmic Projects," Obrana Lidu, Jan 23, 1955.

POKROVSKIY, G. (I.), Maj Gen (Engr-Tech Serv),

Professor, Doctor of Technical Sciences.

Author of article, "From Atomic Power Plants to Cosmic Projects," concerning the use of atomic energy in submarines, jet aircraft engines, etc. (OL, 23 Jan 55)

SO: Krasnaya Zvezda, Sum #450, 11 Apr 55

POKROVSKIY, G. I. (Dr. Tech Sci)

"Artificial Satellites of the Earth," Izvestiya, c18 Aug 55.

POKROVSKIY, G. I.

The Problems of the Far-Reaching Uses of Atomic Energy

SO; Moscow, Krasnaya Zvezda (Red Star), 21 Aug 55, Uncl

POKROVSKIY, G. I.

"The Nature of Atomic Energy," Zanamie-Sila, 1955, No. 5, pp 8-12.

"The author discusses the conception of energy in general, with particular reference to atomic energy. The sketch on p. 10 shows an approximate distribution of energy fluxes in atomic power generation. Thesketch on p . 11 shows a possibility of direct transformation of atomic into electrical energy. The picture facing p. 12 illustrates the use of atomic energy for railway traction on the wide gauge rialway line. The size of the nuclear powered locomotive, can, by comparison with a standard type locomotive drawn at the same scale on the same page, by estimated."

POKROVSKIY, Georgiy, Maj Gen Engr-Tech Serv, Doctor of Technical Sciences

Author of article, "The Public Must Know the Facts," concerning the need for armaments reductions and the outlawing of weapons of mass destruction.
Moscow News, No 7, 1955 (in Summary 531, p. 61, 8 June 1955).

POKROVSKIY, G I.

"The Shock Wave," "Atomic Explosions in the Air and on the Sea, Part II, Section 7," in Concerning Atomic Energy, Ministry of National Defense, 1955, Part II, Section 4.

POKROVSKIY, G. I.

"Atomic Aircraft of the Future," Tekhnika Molodezhi, 1955, No. 6, pp 22.

"The author mentions the two main problems in the application of an atomic engine to an aircraft: the necessity for extensive cooling of the reactor itself and the problem of protecting the crew and passengers against gamma rays, and the flow of neutrons, which requires a shielding weighing several tons per square meter of protective-wall surface. It is suggested that the reactor could be placed in the tail, the fuselage made longer, and the cabin with passengers placed in the nose part; then all the protective devices could be made about 100 times lighter. Thus, the problem of personnel protection is solved in principle. When on the ground, at the airfield, the reactor could be lowered to a special ditch. In order to assure strong heating of the air in the atomic engine itself, graphite is mixed with the uranium dust introduced into the reactor. Here, the air stream is heated to approximately 1000C. To prevent rapid wear of the compressor blades, the uranium particles (diameter 0.10 mm) are coated with a thin film of material that is less hard than the blade metal. After the gas turbine, the air stream enters a cyclone chamber, where the heavy uranium dust is deposited on the walls and the air then is ejected throught the jet. The engine can be started by compressed air, or by increasing the pressure in the chamber in front of the turbine by burning kerosene in it with an appropriate oxodizer. The article has one figure."

POKROVSKIY, G.I., professor, doktor tekhnicheskikh nauk

Under arctic ice. Znan.sila 30 no.8:10-12 Ag'55. (MLRA 8:11)
(Arctic regions) (Atomic submarines)

POKROVSKIY, G., and NAUMENKO, I.

"Nuclear Combustion Engines" an article in the publication Problems of the Use of Atomic Energy. October, 1956, Moscow

POKROVSKIY, Georgiy Iosifovich, professor, doktor tekhnicheskikh nauk; ISLANKINA,T.F., redaktor; ISLENT'YEVA,P.G., tekhnicheskiy redaktor

[The physics of explosions] Fizicheskie osnovy vzryvnogo dela. Moskva, Izd-vo "Znanie," 1956. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.3, no.7)
(Explosions) (MLRA 9:3)

ARKHIPOV, Mikhail Pavlovich, kandidat tekhnicheskikh nauk; POKROVSKIY, G.I., professor, doktor tekhnicheskikh nauk, redaktor; PAVLOV, M.A., redaktor; ANDRIANOV, B.I., tekhnicheskiy redaktor

[Working principle of atomic weapons and protection against the atomic bomb] Osnovy ustroistva atomnogo oruzhiia i protivoatomnaia zashchita. Pod red. G.I.Pokrovskogo. Moskva, Izd-vo DOSAAF, 1956. 84 p. (MLRA 9:12)

(Atomic warfare)

POKROVSKIY, Georgiy Iosifovich, general-mayor inzhenerno-tekhnicheskoy sluzhby, doktor tekhnicheskikh nauk , professor.;BEZDENEZHNYY, P.T, podpolkovnik, redaktor; SRIBNIS, N.V., tekhnicheskiy redaktor.

[Science and technology in modern wars] Nauka i tekhnika v sovremennykh voinakh. Moskva, voen.izd-vo M-va obor.SSSR, 1956. 87 p. (MLRA 10:4)

(War)

POKROVSKIY, G.I., professor, doktor tekhnicheskikh nauk, redaktor; SHPAYER, A.L., redaktor; PRUDNIKOVA, M.I., redaktor; LYUDKOVSKAYA, N.I., tekhnicheskiy redaktor

[Blasting operations; a collection of articles] Vzryvnye raboty; sbornik statei. Moskva, Gos. izd-vo lit-ry po stroit. materialam. No.3. 1956. 147 p. [Microfilm] (MLRA 10:5)
(Blasting)

ARKHIPOV, Mikhail Pavlovich, inzhener-podpolkovnik, kandidat tekhnicheskikh nauk; POKROVSKIY, G.I., professor, doktor tekhnicheskikh nauk, general-mayor inzhenerno-tekhnicheskoy sluzhby, redaktor; KADER, Ya.M., redaktor izdatel'stva; SRIBNIS, N.V., tekhnicheskiy redaktor

[Light radiation emitted by atomic explosion] Svetovoe izluchenie atomnogo vzryva. Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1956. 209 p. (MLRA 10:2)
(Atomic bomb) (Radiation)

POKROVSKIY, G. I.

"Atomic Energy in the Sixth Five-Year Plan," Moscow News, April 4, 1956, p. 2.

"As outlined in the Directive of the 20th Congress of the Communist Party of the Soviet Union, it is planned to build atomic power plants with a total capacity of 2 to 2.5 million kilowatts during the coming five-year period. These are to include two stations with an aggregate capacity of one million kilowatts in the Urals and one stateion of 400,000 kilowatts close to Moscow. To fulfill this programme we will have to build during the Sixth Five-Year P an approximately ten types of atomic reactors with an electric power capacity ranging from 50 to 200,000 kilowatts each. These will include fast reactors, reactors working on low velocity neutrons and intermediate reactors, reactors with moderators of graphites, beryllium, of heavy and common water, with gas or metal cooling. A powerful thorium reactor will be built."

SOV/124-58-2-1656

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 2, p 24 (USSR)

AUTHOR: Pokrovskiy, G.I.

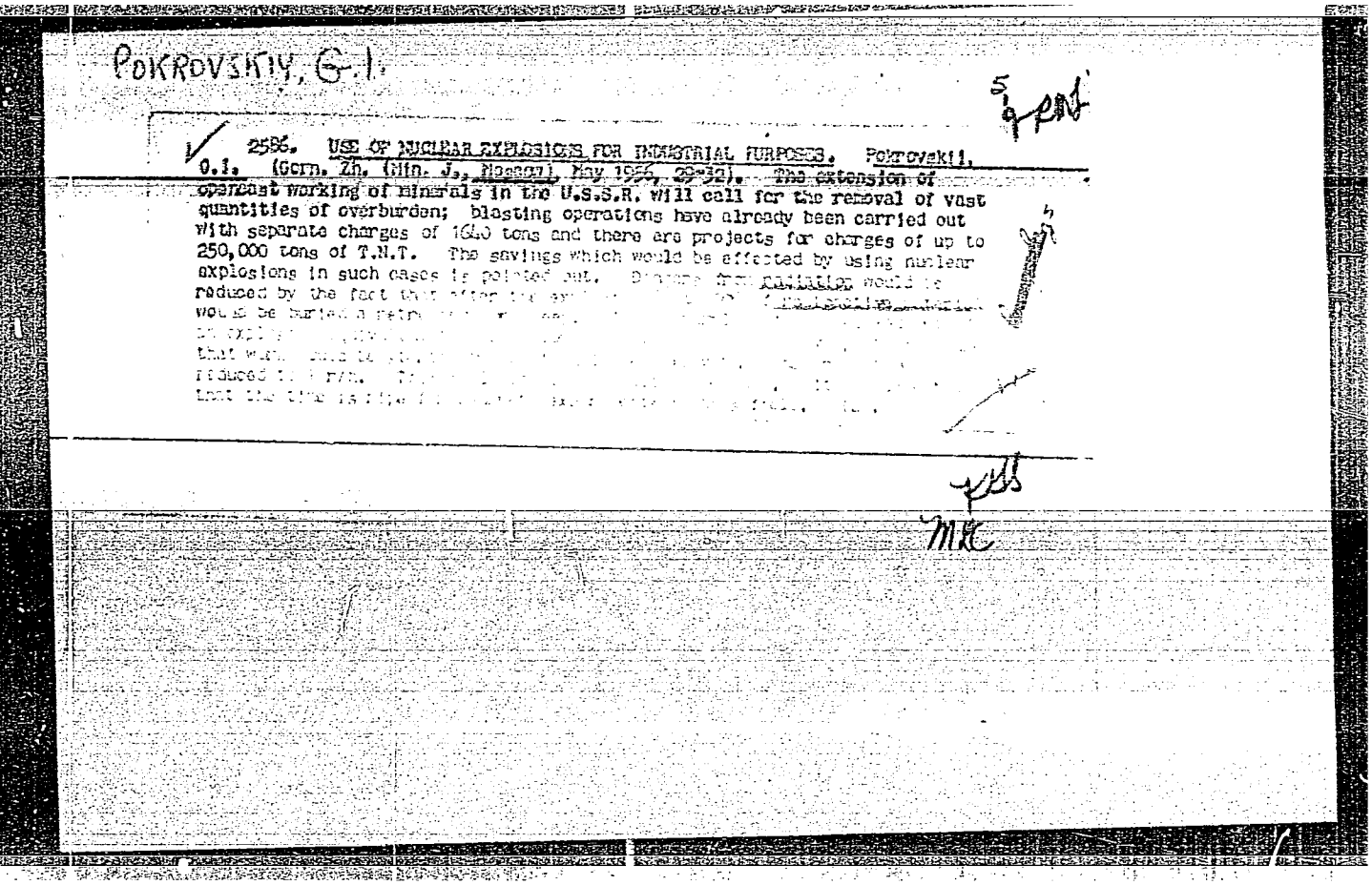
TITLE: The Fundamental Premises for Calculations Pertaining to Large Explosive Charges for Blasting (Osnovnyye predposylki dlya rascheta krupnykh zaryadov VV na vybros)

PERIODICAL: V sb.: Vzryv. raboty. Nr 3. Moscow, Promstroyizdat, 1956. pp 6-22

ABSTRACT: The author develops a formula for determination of the charge weight required for blasting of soil along the line of least blast resistance. For least-resistance lines of great length the author demonstrates that this formula permits obtaining results more accurate than those of Boreskov's formula. Experimental data are included in the article.

G. S. Migirenko

Card 1/1



POKROVSKIY, G.I.

2586. USE OF NUCLEAR EXPLOSIONS FOR INDUSTRIAL PURPOSES. Pokrovskii, G.I. (Gorn. Zh. (Min. J., Moscow), May 1956, 29-32). The extension of opencast working of minerals in the U.S.S.R. will call for the removal of vast quantities of overburden; blasting operations have already been carried out with separate charges of 1600 tons and there are projects for charges of up to 250,000 tons of T.N.T. The savings which would be effected by using nuclear explosions in such cases is pointed out. Dangers from radiation would be reduced by the fact that after the explosion [illegible] would be buried [illegible]

YELANCHIK, G.M.; ALATORTSEV, S.A.; GLADILIN, L.V.; RYS'YEV, A.V.; OZERNOY, M.I.; POKROVSKIY, G.I.

F.N. Shkliarskii; obituary. Elektrichestvo no.5:95 My '56. (MLRA 9:8)

(Shkliarskii, Feliks Nikolaevich, 1883-1955)

POKROVSKIY, G.

"The Atomic Passenger Plane of the Future," by Prof G. Pokrovskiy, Doctor of Technical Sciences, Ogonek, No 44, Oct 56, p 18

According to the author, "Even in 1881, the well-known revolutionary N. I. Kibal'chich, executed for participating in an attempt on the life of Tsar Alexander II, threw together plans for a jet plane. According to these plans, the plane would be capable of vertical take-off. The idea would be realized through the use of the reactive propulsion method and through the vertical installation of the engines.

"This idea is now being realized."

Sum 1258

POKROVSKIY, Georgiy Ionifovich, general-mayor, doktor tekhn. nauk; FAYNBOYM, I.B., redaktor; GUBIN, M.I., tekhnicheskiy redaktor.

[The role of science and technology in modern war] Rol' nauki i tekhniki v sovremennoi voine. Moskva, Izd-vo "Znanie," 1957. 23 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.4, no.29) (MIRA 10:11)
(Military art and science)

Petrovskaya, G.I.

SEMENOV, M.P., doktor geologo-mineralogicheskikh nauk, prof., red.; PRIKLONSKIY, V.A., doktor geol.-mineral. nauk, prof., red.; MASLOV, N.N., doktor tekhn.nauk, red.; POKROVSKIY, G.I., red.; MOROZOV, S.S., doktor geol.-mineral.nauk, red.; RUBINSHTEYN, A.L., red.; SOKOLOV, D.S., kand.geol.-mineral. nauk, red.; LYKOSHIN, A.G., red.; YANSHINA, M.S., red.; ORADOVSKAYA, A.Ye., nauchnyy sotrudnik, red.; SAFONOV, P.V., red.izd-va; BUSEVA, S.S., tekhn.red.

[Dissolving and leaching rock] Rastvorenie i vyshchelachivanie gornykh porod. Moskva, Gos. izd-vo lit-ry po stroit. i arkhit., 1957. 264 p. (MIRA 11:2)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut vodosnabzheniya, kanalizatsii, gidrotekhnicheskikh sooruzheniy i inzhenernoy gidrogeologii. 2. Zaveduyushchiy laboratoriyey inzhenernoy gidrogeologii Vsesoyuznogo nauchno-issledovatel'skogo instituta vodosnabzheniya, kanalizatsii, gidrotekhnicheskikh sooruzheniy i inzhenernoy gidrogeologii.(for Semenov). 3. Laboratoriya gidro-geologicheskikh problem imeni F.P.Savarenskogo (for Priklonskiy). 4. Leningradskiy inzhenerno-stroitel'nyy institut (for Maslov). 5. Moskovskiy gosudarstvennyy universitet imeni Lomonosova (for Morozov). 6. Moskovskiy geologorazvedochnyy institut imeni S. Ordzhonikidze (for Sokolov). 7. Vsesoyuznyy nauchno-issledovatel'skiy institut vodosnabzheniya, kanalizatsii, gidrotekhnicheskikh sooruzheniy i inzhenernoy gidrologii (for Oradovskaya)
(Leaching)

POKROVSKIY, [redacted], professor; FEDOROV, Il'ya Sergeyevich, professor; ASSONOV, V.A., nauchnyy redaktor; GIMPEL'SON, A.Z., redaktor; GILENSON, P.G., tekhnicheskiy redaktor

[Force of impact and explosion on the deformation area] Deistvie udara i vzryva v deformiruemykh sredakh. Moskva, Gos.izd-vo lit-ry po stroit.materialam, 1957. 275 p. (MIRA 10:11)
(Blast effect)

POKROVSKIY, G.I.

TOKAREV, F.V., izobretatel', Geroy Sotsialisticheskogo Truda; SMIRNOV, I.V., izobretatel' v oblasti stroymaterialov; POKROVSKIY, G.I., professor, doktor tekhnicheskikh nauk; SHIRKOV, I.P., novator stroitel'noy industrii; CHIKIREV, N.S., novator; KOTOVA, S.A., novator, brigadir pryadil'shchits; LOGIN, M.I., izobretatel', inzhener; SLIVOCHKIN, F.P., ratsionalizator; MERKULOV, I.A., izobretatel', konstruktor dvigateley; KOSMATOV, N.V., izobretatel' v oblasti kino; KHLEBTSEVICH, Yu.S., izobretatel', kandidat tekhnicheskikh nauk; SHCHADILOV, V.I., ratsionalizator-naladchik.

"Inventor" has a pround ring to it! Tekh. mol. 25 no.3:1-3 Mr '57. (MIRA 10:6)

1. Deputat Verkhovnogo Soveta SSSR (for Shirkov). 2. Nachal'nik tsekha zavoda imeni Sergo Ordzhonikidze (for Chikirev). 3. Fabrika imeni Kalinina (for Kotova). 4. Termitnostrelochnyy zavod (for Login). 5. Zavod "Kauchuk" (for Slivochkin).
(Inventions)

POKROVSKIY, G.I., professor.

Constructive explosion. Tekh. mol. 25 no.7:7 Jl '57. (MLRA 10:8)
(China--Blasting)

POKROVSKIY, G.

POKROVSKIY, G., professor.

Earth's model. Tekh.mol. 25 no.8:24 Ag '57. (MLRA 10:9)
(Earth--Models)

POKROVSKIY, G.I., prof.

Electric explosions. Tekh. mol. 25 no.9:26-27 S '57. (MLRA 10:9)
(Electric discharges)

POKROVSKIY, G.I.

POKROVSKIY, G.I., prof.

Architecture in the cosmos. Tekh.mol. 25 no.12:16-19 D '57. (MIRA 11:1)

(Rockets (Aeronautics))
(Artificial satellites)

POKROVSKIY, G., general-mayor inzhenerno-tekhnicheskoy sluzhby, doktor tekhni-[redacted]kh nauk.

Atomic weapons of capitalist countries. Voen. znan. 33 no.3:35-37 Mr '57. (MLRA 10:6)

(Atomic warfare)

POKROVSKIY, G.I., prof.

Removal by blasting. Priroda 46 no.8:81-83 Ag '57. (MLRA 10:9)

1. Voyenno-vozdushnaya inzhenernaya akademiya im. N.Ye. Zhukovskogo, Moskva.

(Blasting)

Name : POKROVSKIY, G. I.

Title : Professor, Doctor of Technical Sciences, Major General of Engineering-Technical Service

Remarks : In an article entitled "Intercontinental Missiles and Aviation" Prof. Pokrovskiy writes that the problem of re-entry of a spaceship can be solved only by equipping the ship with wings and the same type of controls as used in modern aircraft. The wings will be needed for landing on a predetermined airfield. The carrier rockets of such a ship would have the shape of an aircraft to insure safe return and re-use. A drawing by the author features the launching of a space-ship of the future. The ship and its two carrier rockets, to be used in two stages, are shaped like sweptback airplanes designed for automatic landing.

Source : N: Sovetskaya Aviatsiya, No. 282, 1 December 1957, p. 3, col. 5-6

POKROVSKIY, G. I.,

"Prerequisites of the Theory of Rock Crushing by Blasting," Theoretical Problems in Crushing Rock by Blasting, Moscow, Izd-vo AN SSSR, 1958. 161 p.

PETROVSKIY, G. I.

28

PHASE I BOOK EXPLOITATION SOV/5494

Vasil'yev, Mikhail Vasil'yevich, and Sergey Zakharovich Gushchev

Reportazh iz XXI veka; my zapisali rasskazy dvadtsati devyati sovetskikh uchenykh o nauke i tekhnike budushchego (Reports From the Twenty-First Century; Stories of Twenty-Nine Soviet Scientists on Science and Engineering of the Future) [Moscow] Izd-vo Sovetskaya Rossiya, 1958. 243 p. 50,000 copies printed.

Ed.: V. A. Golubkova; Tech. Ed.: G. I. Kleyeva.

PURPOSE : This book is intended for the general reader.

COVERAGE: The book contains 27 articles (told reporters by Soviet scientists) dealing with probable future progress in physics, chemistry, electricity, metallurgy, engineering, mining, medicine, biology, agriculture, zoology, transportation, exploration of space, and photography. Attention is given to automation, automatic underground gasification of coal, use of new metals, modernization of oil fields, atomic electric stations, production of metal parts by the process of explosion, explosions

Card 1/7

Reports From the Twenty-First (Cont.) SOV/5494

in dam construction, cancer, internal longevity reserves, machine diagnoses of illnesses, surgery vs. treatment by ultrasonic vibrations, mechanical heart substitutes, human body banks, "medical engineering," enriched fodder, "superfertilizers", artificial snowfalls, agriculture vs. "mariculture", radiochemistry, power beam vs. wire, machines doing intellectual work, "EP automobiles" (with "radio motors"), "artificial sun" (electromagnetic rays focused above a city which cause heated molecules to shine), future ocean ships, "railway dreadnoughts", Moscow of the future, moving pavements, wheelless and driverless automobiles, electric cameras, the industrialization of Siberia, use of underground heat, climate control, living on the moon, antimatter, and photon jet. Names of the interviewed scientists are given. There are no references.

TABLE OF CONTENTS:

Card 2/7

Reports From the Twenty-First (Cont.) SOV/5494

Card 3/7

POKROVSKIY, G. I. (Maj. Gen.) Engineering-Technical Services,

Prof. Doctor of Tech. Sci.

"Glance Into the Future", Sovetskaya Aviatsiya, (Soviet Aviation) No. 1, Jan. 1958

Trans 1158506

POKROVSKIY, G.

85-58-3-8/26

AUTHOR: Pokrovskiy, G., Professor, Doctor of Technical Sciences, Major General of Engineering and Technical Services

TITLE: Geocosmic Flight (Geokosmicheskiy polet)

PERIODICAL: Kryl'ya rodiny, 1958, Nr 3, pp 9-10 (USSR)

ABSTRACT: The author uses the term "geocosmic flight" to designate flight through space from one point on the earth's surface to another. He attempts to discuss the probable development, in the near future, of flight through the air and flight outside the atmosphere. While airplane flight requires continuous expenditure of energy to overcome air resistance, space flight does not. The energy expended by a fast modern airplane is roughly equal to the product of the distance traveled times the weight of the plane. Computations show that a space rocket expends about the same amount of energy in attaining an orbital course outside the atmosphere as an airplane requires to cover a distance equal to one radius of the earth, i.e., 6400 km. In principle, therefore, intercontinental flight is more economical by rocket than by airplane. One course of development in long-distance flight techniques will be a transition from flight through the air to flight through space,

Card 1/2

Geocosmic Flight

although these two types will probably be combined. The author contemplates acceleration and braking distances of 1000 km each, with a force of 3 gravities exerted on machine and personnel. Initial acceleration would be achieved by turbojet engines and final acceleration by liquid-fuel rocket engines. Braking would be by gradual reentry into the atmosphere and also by reverse rocket thrust. The most complex technical problem would be the avoidance of overheating by a combination of refrigeration of the nose and insulation of the interior of the ship, perhaps by vacuum. Geocosmic flight will not replace conventional flight, but will extend and complement it. It is also a first step toward lunar and interplanetary flight, which could be achieved by adding to the geocosmic ship a lighter rocket meter with sufficient fuel to attain the comparatively slight additional speed required. Geocosmic ships would also be used for communication with habitable earth satellites. There are 3 drawings.

AVAILABLE: Library of Congress

Card 2/2

29(0)

AUTHOR: Pokrovskiy, G.I., Professor, Doctor of Technical Sciences SOV/29-58-11-4/28

TITLE: Landing on the Moon (Priluneniye)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 11, pp 3-4 (USSR)

ABSTRACT: In this scientifico-utopian article the author discusses the possibility of landing on the moon, or in his words "mooning". First of all, he explains the difference between a landing on the earth and on the moon. The greatest difficulty is that the moon does not possess an atmosphere so that it is impossible to gradually slow down the speed of the airship as it is the case in the presence of a "soft" atmosphere. Therefore it would be necessary to create, at least for the time of the "mooning" and in the area where the ship goes down, an artificial atmosphere. This idea is very clear, but it seems very difficult to translate it into practice. The author then proceeds to develop a basic idea of how the problem might be solved. When approaching the moon, the space ship would have to launch a missile which would whirl up the layer of dust very loosely covering the surface of the moon. No doubt a missile hitting the

Card 1/3

ground at the end of a flight tangential to the surface of the moon would give rise to an enormous cloud of dust. At the same time, very high temperatures would develop, so that part of the dust would evaporate and form a cloud of rather dense gases. The space ship would approach the surface in a very flat curve and would thus fly through the cloud of dust and gases for a rather long time. A curved blade sticking out from below the fuselage which would push the dust and gases forward in front of the ship would also serve to increase the cloud formation. Thus, the ship would continually move in dense atmosphere. Of course it might happen that the speed of the ship in the vicinity of the moon would not be slowed down sufficiently so that it would travel around the moon on an elliptical orbit. This orbit, however, might be corrected by means of jet propulsion. Rather primitive calculations show at once that fuel consumption would in this case be very low. The travelling speed of the space ship might thus be progressively reduced by successive approaches until it would be possible to perform a glide landing. It might also be useful to bombard the moon with special rockets in order to study the formation of dust clouds and to obtain precise data by means of which the suggested method could be put into practice. The example, however, serves

to prove that man actually is in a position to create an artificial atmosphere in the absence of a natural one. There are 5 figures.

AUTHOR: Pokrovskiy, G.I., Professor 29-58-6-3/19

TITLE: The Cosmic Space, a Reservoir of Infinite Energy Supplies (Kosmicheskoye prostranstvo - khranilishche bezgranichnykh zapasov energii)

PERIODICAL: Tekhnika Molodezhi, 1958, Vol 26, Nr 6, pp 5-5, 13-13 (USSR)

ABSTRACT: Nowadays when man begins to penetrate into the outer space the problem is raised how this space can be exploited and how energies could be obtained from it. But not only the obtaining, but also the possibility of a practical exploitation of these powers must be taken into consideration. The radiation of the sun and of the stars can be used for the movement of the astronautical crafts only when the craft carries with it an enormous quantity of reacting inert exhaust substance at the start. For this reason the exploitation of the various radiation sources in the cosmic space seems to be little useful within the next future. The power supply of the cosmic space is, however, limited not only to the existence of radiations. It is known that the

Card 1/3

cosmic space is penetrated by various fields. These are in the first place the forces of the interplanetary attraction. They are the basic factors which determine the movement of the planets and are taken into account in the computation of the trajectories of the astronautical crafts. Beside this field of attraction there are also others: electric and magnetic ones. Though they are only to a small extent investigated they are doubtlessly important. These very cosmic electromagnetic fields can be exploited for a guided astronautical craft. For this purpose the craft has, however, to be especially equipped. Two accelerators for the elementary particles must be considered as the basic elements of such an equipment. The one is provided for the acceleration and for the ejection of positive particles - hydrogen ions (protons), the other for negatively charged electrons. If the craft is divided into two isolated parts, the craft can be turned in the case of corresponding charge of the particle in question. If the entire craft or a part of it is brought into rapid rotation and charged simultaneously with the electricity of a corresponding sign, it is transformed into a magnet wich can be adjusted correspondingly in the

The Cosmic Space, a Reservoir of Infinite Energy Supplies. 29-58-6-3/19

cosmic magnetic field. Though the forces are in most cases only very weak, one can be sure that the magnetic fields existing in the interplanetary space will make possible a guiding of the astronautical craft, at least outside the force of attraction of the planetary massives. Thus it is shown that the cosmic space is not only a path to distant planets, but is for its own part a world full of unexploited energies. In future the energy will be obtained not only from the substances existing in the earth like coal, mineral oil, gas, uranium, thorium, deuterium, and lithium, but also from the outer space. There are 2 figures.

1. Spaceships--Propulsion 2. Interstellar matter--Theory 3. Magnetic fields--Theory

Card 3/3

Pokrovskiy, G.I.

86-1-17/30

AUTHOR: Pokrovskiy, G.I., Doctor of Technical Sciences, Professor, Maj Gen of Technical Engineering Section

TITLE: From Aerodynamic to Cosmic Flying (Ot aerodinamicheskogo poleta - k kosmicheskomu)

PERIODICAL: Vestnik Vozdushnogo Flota, 1958, Vol. 41, Nr 1, pp. 53-58

ABSTRACT: The author discusses the road to cosmic flying. In the upper-atmosphere zone, at about 300 km, the air density is 10 billion times lower than at the ground level, and flight is governed by the simplest laws of ballistics and celestial mechanics. Below that upper zone, in the transition zone, the aircraft should fly at speeds not exceeding two or three times that of sound, and thus avoid excessive heating. The speed necessary for straight and

Card 1/6

From Aerodynamic to Cosmic Flying (Cont.)

level flight may be determined according to the formula

$$G_0 \left(\frac{R}{R+H}\right)^2 = \alpha \rho + \frac{G_0}{(R+H).g} . V^2, \text{ where}$$

G_0 is the weight of aircraft at sea level; α, a constant; ρ, air density at a given altitude; R, the radius of the earth; H, the altitude of flight; g, acceleration due to gravity; and V, flight speed. The so-called "first cosmic speed" V_{K1} of a satellite circling the earth at the altitude H above the ground is determined according to the formula

$$V_{K1} = R.\sqrt{\frac{g}{R+H}};$$

this formula is obtained from the practical equality existing in the upper zone between the centrifugal force and the weight of the aircraft:

$$\frac{G_0 . V^2}{g . (R+H)} = \frac{G_0 . R^2}{(R+H)^2} .$$

From Aerodynamic to Cosmic Flying (Cont.)

Fig. 1 gives an approximate band of aircraft speeds, showing how they change with the increasing altitudes. Fig. 2 presents the curve

$$\frac{\rho\ v^3}{\rho_0\ v_0^3} = \varphi\ (H),$$

in relation to flight altitudes. In the transition zone and in the cosmic-flight zone, aircraft may also fly at any low speed, making use of the vertical component force of the jet engine thrust to counteract gravity. Simple calculations indicate that the liquid-fuel jet engine cannot operate effectively at low flight speeds. The zone where the aircraft is heated by friction and the transition zone occupy nearly the same space. The heating equals approximately:

$$\frac{\rho \cdot v^3}{2} \cdot v.$$

Card 3/6

From Aerodynamic to Cosmic Flying (Cont.)

During aerodynamic flight at supersonic speeds, the values of the effective engine thrust and of the weight of the aircraft differ little. At the flight ranges of the order of 15,000 km, the power required is thus 15 million kg-m per kg (of the total weight of aircraft). In order to fly in the cosmic flight zone, about 200,000 kg-m are required to lift each kilogram to the altitude of 200 km, plus about 3.2 million kg-m to impart to that kilogram the speed of 8,000 m per sec; this makes the total of 3.4 million kg-m. Consequently, the cosmic flight is approximately 4.5 times more economical than the high-speed aerodynamic flight, and about 20 times faster. The total power needed for cosmic flying, as related to weight unit, equals

$$E_{K10} = \frac{E_{K1}}{\eta}$$ where the η, or efficiency, may be determined from the known Tsiolkovskiy formula:

$$\eta = \frac{\left(\frac{V}{C}\right)^2}{e^{\left(\frac{V}{C}\right)^2} - 1}$$ where

Card 4/6

From Aerodynamic to Cosmic Flying (Cont.)

C is the speed of expulsion of combustion products from the jet engine. If C is 3,000 m per sec; acceleration due to gravity, 10 m per sec; and the earth's radius, 6,400 km, then the total power per weight unit equals numerically E_{K1} = 6,200 km. For a cosmic flight range which is shorter than the earth's circumference, and with an aircraft flying along elliptical arcs, instead of a circle, the initial launching speed of the cosmic vehicle may be considerably below V_{K1}. Fig. 3 shows the minimum speeds with which bodies must be launched into the airless space in order that the flight range, measured over the earth's surface along the great circle course, equals the given value. Three-stage rockets are needed for speeds exceeding 6,000 m per sec, or for the 40,000 km range flight around the earth. Fig. 4 shows the relationship between the power required for the carrying of a unit of weight,

From Aerodynamic to Cosmic Flying (Cont.)

and the flight range; it also shows that, as far as power is concerned, beginning with the range of 2,000 km the ballistic cosmic flight is more advantageous than the conventional flight. Satellite flight becomes more advantageous with ranges exceeding 6,200 km. Since, however, maneuverability during cosmic flights is less effective, complete elimination of conventional aircraft by rocket vehicles can be feasible only in certain tasks with which military and civil aviations are concerned.

AVAILABLE: Library of Congress

Card 6/6

AUTHOR: Pokrovskiy, G.I., Professor SOV/26-58-1-16/36

TITLE: On Atmospheric and Cosmic Flight (O vozdushnom i kosmicheskom polete)

PERIODICAL: Priroda, 1958, Nr 1, pp 90-93 (USSR)

ABSTRACT: Flight at altitudes between 20 and 30 km does not offer any particular difficulties. In a 30 to 60 km high area, the outer surface of the aircraft is subject to great heat stresses, while the carrying power of the air is extremely reduced due to its low density. The heat danger is removed in the layer above 90 to 100 km altitude. Thus there are two layers suitable for flight, a lower aviation and an upper cosmonautical. From a standpoint of energy consumption, cosmic flights covering distances of thousands of km, will be considerably less expensive, as soon as the necessary altitude has been reached. Flight within the bottom layer makes fuel consumption dependant on the distance to be covered. It is hoped that cosmic flight, from point to point on Earth will be materialized within the next decade. One of the main problems to be solved before, is flight through the heating layer between 30 and 90 km. The ascent must be effected nearly vertically, so that the traction power of the liquid-reactive engine, compensates

Card 1/2

the force of gravity. Thus, a comparatively low speed would eliminate the heat danger. The way back through the dangerous layer must be effected by applying a strong reactive braking power. This would necessitate large amounts of fuel, and an undesired weight increase. A very fast break-through of the dangerous layer in both directions might be an alternative solution, since the heat would propagate only slowly and would not affect the interior parts of the aircraft.
There are 2 diagrams.

ASSOCIATION: Voyenno-vozdushnaya inzhenernaya akademiya im. N.Ye. Zhukovskogo, Moskva (Air Force Engineering Academy imeni N.Ye. Zhukovskiy, Moscow)

SOLODOVNIKOV, Vladimir Viktorovich, prof.; POKROVSKIY, Georgiy Iosifovich, prof.; DANILIN, Boris Stepanovich, kand.tekhn.nauk; FAYNBOYM, I.B., red.; SAVCHENKO, Ye.V., tekhn.red.

[Achievements in modern physics] Uspekhi sovremennoi fiziki; sbornik. Moskva, Izd-vo "Znanie," 1959. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.9, Fizika i khimiia, no.28) (MIRA 13:1)
(Automation) (Aeronautics) (Atmosphere)

POKROVSKIY, G.I.

PHASE I BOOK EXPLOITATION SOV/4693

Nekhozhennymi tropami Vselennoy (Untrodden Paths of the Universe) Moscow, Izd-vo "Pravda," 1959. 63 p. (Series: Biblioteka "Komsomol'skoy pravdy," no. 11) 131,000 copies printed.

Ed.: V. Kukushkin; Tech. Ed.: L. Novikova.

PURPOSE: This popular science booklet is intended for the general reader.

COVERAGE: The booklet contains 14 articles dealing with early and recent efforts and accomplishments in space exploration. Though popular in style, the articles are written by leading Soviet scientists in the field. The contributions of K. E. Tsiolkovskiy to space science are briefly presented. Satellites, space rockets, future space craft, and certain pertinent engineering problems are discussed. No personalities are mentioned. No references are given.

~~Card 1/4~~ 1/2

19(0) PHASE I BOOK EXPLOITATION SOV/3116

Pokrovskiy, Georgiy Iosifovich, Major General of the Engineering Technical Service, Professor, Doctor of Technical Sciences

Nauka i tekhnika v sovremennykh voynakh (Science and Technology In Modern Warfare) 2nd ed., rev. and enl. Moscow, Voyenizdat, 1959, 137 p. (Series: Nauchno-populyarnaya biblioteka)

Ed.: P. T. Astashenkov, Engineer-Lt. Colonel; Ed. of Publishing House: Ya. M. Kader; Tech. Ed.: M. A. Strel'nikova.

PURPOSE: This booklet is intended for officers of the Soviet Army, Air Force, and Navy.

COVERAGE: The author discusses the importance of various fields of scientific knowledge to present-day military science. Both natural science and technology are stressed. A classification of modern weapons is provided and countermeasures are discussed.

Card 1/3

Particular emphasis is given to physics, electronics, and mathematics as basic disciplines required to develop advanced weapons and space technology. Quotations are presented mostly from Western scientific journals and the popular press. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Pokrovskiy, G. I.

21(0); 1(0); 2(10) PHASE I BOOK EXPLOITATION SOV/2210

Atomnaya energiya v aviatsii i raketnoy tekhnike; sbornik statey (Atomic Energy in Aviation and Rocket Engineering; Collection of Articles) Moscow, Voyen. Izd-vo M-va obor. SSSR, 1959. 500 p. (Series: Nauchno-populyarnaya biblioteka) No. of copies printed not given.

Ed. - Compiler: P.T. Astashenkov, Engineer, Lt.-Col; Ed.: Ya.M. Kader; Tech. Ed.: A.M. Gavrilova.

PURPOSE: This book is intended for officers of the Soviet Armed Forces, members of DOSAAF, and the general reader interested in the uses of atomic engergy and in the development of aviation and rocket engineering.

COVERAGE: This collection of 46 articles, compiled by 28 Soviet scientists and based chiefly on non-Soviet materials, discusses various aspects of the use of atomic engergy in rocketry and aviation. The book surveys the development of atomic and thermonuclear weapons and weapon carriers, lays down the principles of anti-atomic defense, and evaluates the application of nuclear engergy in aviation and rocketry. Fuel and construction materials, as well as actual physical and technological processes involved, are treated briefly. Fundamentals of atomic warfare and combat tactics are discussed at some length. The book is divided into four parts, of which the last consists chiefly of anti-Western propaganda. Section I is devoted to nuclear weapons and their use in aviation. Section II is on anti-atomic defense, especially the defense and decontamination of airfields and aircraft, and defense against radiation. Section III is on the use of nuclear energy in modern aricraft and rocket technology and flight technique, including some speculations on space travel and on the energy of the future. There are 126 figures and 35 non-Soviet references (some in Russian Translation).

TABLE OF CONTENTS:

Card 7/9

AUTHOR: Pokrovskiy, G., Professor, Doctor of Technical Sciences SOV/29-59-1-11/26

TITLE: From the Earthen Pot to the Plasma Container (Ot glinyanogo gorshka do khranilishcha plazmy)

PERIODICAL: Tekhnika molodezhi, 1959, Nr 1, pp 15 - 16 (USSR)

ABSTRACT: In this scientific article for general information the author explains first the term of plasma, and then gives a historical survey of the evolution of mankind. When man started making earthen vessels for water, it was more than just an invention for everyday use. In principle, he had then attained the height of knowledge that corresponded to the level and demands of the people of that time. Whether the man of the atomic and cosmic age will succeed in making a container for the new substance - the plasma - is a problem not to be solved quite easily. In order to make a container for the plasma one must find, instead of a substance, such a form of matter which is indifferent to temperature. Man is beginning to master such form of matter. Electromagnetic fields and waves are such form. The obstacle offered by magnetic fields detains the electrically charged particles of plasma.

Card 1/2

SOV/29-59-4-20/26

3(1)
AUTHOR: Pokrovskiy, G., Professor, Doctor of Technical Sciences

TITLE: A "Lift" Into Cosmos ("Lift" v kosmos)

PERIODICAL: Tekhnika molodezhi, 1959, Nr 4, pp 29 - 30 (USSR)

ABSTRACT: In this popular-scientific article the author reports on the possibility of reaching the cosmos by means of very high towers. If, in the course of time, scientists succeeded in erecting a tower of a height of 100 km then it would be possible to observe from this tower all details on the moon and even on the Mars as well as various cosmic phenomena in their original form. Such a high tower, however, cannot be constructed by ordinary means. A possibility lies in the so-called "aerostatic" or "gas"-architecture. The author reported already earlier (in 1936) on this type of architecture of thin foils (arkhitektura tonkikh plenok). One way imagine a tower of thin foils closed from both sides. If this tower would be filled with light gas then the one part which was loaded would prop only slightly to the ground and the other part would be lifted. For the establishment of such a tower neither cranes nor overground workers would be necessary.

Card 1/3

I 8/18

top of the tower (rear cover, top). Such a tower could also be constructed from concentric cylinders which are extended like a telescope. In a tower filled with helium balloons filled with hydrogen could raise to high altitudes. These balloons may serve as various types of lifts. There are 4 figures.

66612
SOV/29-59-10-25/27

~~29(1)~~ 3.2000

AUTHOR: Pokrovskiy, G., Professor

TITLE: Building in the Cosmos

PERIODICAL: Tekhnika molodezhi, 1959, Nr 10, pp 37-38 (USSR)

ABSTRACT: In this article the author discusses the possibility of creating large scientific and even industrial constructions in form of satellites in the cosmos, in which there is practically no gravitational force. An altitude of 200-300 km is best suited for this purpose. However, also other forces acting upon the satellites must be taken into account. Within range of a satellite, similar forces must be active, though to a lesser extent, than those which cause tidal motion on the earth under the influence of the sun and the moon. They cause an expansion of the satellite in the direction earth-satellite and its flattening in the plane that is perpendicular to this direction. These forces must not be disregarded when calculating certain constructions. The state of expansion and compression will alternate in the course of time, unless the satellite revolves round an axis that is perpendicular to the orbit and performs a rotation in the course of a complete revolution round the earth. In this case the direction of

Card 1/3

expansion and compression remains unchanged. Otherwise, however, the construction is subjected alternatingly to tractional and compressive stress. If an especially light construction is required, great rotational speeds must be avoided, because otherwise the construction would be subjected to the stress caused by centrifugal forces, which is considerably stronger than the tidal forces. In cases requiring the production of a certain centrifugal force in order to create an effect by the gravitational force upon human beings, it will probably be better if individual constructional elements but not the entire satellite is caused to rotate. For the construction of large and at the same time light satellites thin-walled tubes filled with a light gas are best suited. Such a system of tubes might be sent into space by means of rockets. Besides, foils fitted onto a system of tubes might be used. In this way, it would be possible to produce enormous mirrors for the capture of sunlight for motors and sun-batteries, and further for satellites showing the way for geodesy and navigation, as well as mirrors for radiotelescopes and radio relays might be produced. Further possible designs include

spherical, thin-walled shells, which are filled with gas under weak pressure. Such systems are suited for the production of electric power plants working with solar energy, and further for telescopes and radiotelescopes. The calculation of such designs is, however, extremely difficult because they lose their shape under the influence of inertia and tidal forces. Therefore, complex measures will be necessary in order to warrant a satisfactory functioning of such telescopes and other devices. An argument against the described designs is the danger of their being damaged by meteorites. There are, however, several possibilities of avoiding this danger. In all cases, however, a certain reserve of strength in construction as well as a corresponding stock of gas for the compensation of escaping gas must be provided for. There are 4 figures.

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